

**GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA**

STARRED QUESTION NO:56

ANSWERED ON:24.11.2006

QUALITY OF SCIENTIFIC RESEARCH

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Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) whether quality of scientific research has been decreasing in the country;
- (b) if so, whether the Government has made any study to find out the reasons for the same;
- (c) if so, the details thereof;
- (d) the corrective steps taken by the Government to improve the quality of scientific research;
- (e) whether the Government is planning to double its allocation for Science and Technology within the next five years as reported in The Times of India dated October 7, 2006; and
- (f) if so, the details thereof?

Answer

MINISTER OF SCIENCE AND TECHNOLOGY AND MINISTER OF EARTH SCIENCES (KAPIL SIBAL)

(a) to (f) A statement is laid on the Table of the House.

STATEMENT AS REFERRED IN REPLY TO PARTS (a) to (f) OF LOK SABHA STARRED QUESTION NO. 56 FOR 24.11.2006 REGARDING 'QUALITY OF SCIENTIFIC RESEARCH'

(a): While output of scientific research from India, as measured by research papers published in cited journals, has been slowly increasing in absolute terms over the past twenty five years (from 14983 in 1980 to 19448 in 2005), its share as percentage of world publications has declined from 2.9 % in 1980 to 1.9 % in 2005. However, in the last 10 years, it has increased from 1.5 % to 1.9 %. In terms of citations also, which is considered to be a standard indicator of quality, India's performance has increased from 0.76 in 1993-97 to 0.86 in 1997-2001. Its share of top 1% highly cited publications increased from 0.32 in 1993-97 to 0.54 in 1997-2001. Even the number of US patents granted to Indian inventors has been increasing- from 88 in 2000-01 to 229 in 2004-05. Other countries like China and South Korea, however, have progressed much faster.

(b) & (c): This issue has been under intense debate and examination in several forums in recent times including the Scientific Advisory Council to the Prime Minister. The two main reasons are:

(1) sub-critical funding to capable groups in the country; and,

(2) decline of research in the university sector. Universities are the mainstay of scientific research all over the world, but, in our country, universities have been suffering because of a variety of financial and governance problems leading to, among other things, depletion of faculty, impoverishment of research infrastructure and lack of opportunities for the faculty for updating their knowledge. Most universities fall in the domain of State Governments and they need to address the problems urgently.

(d): The Government of India, on its part, has taken a number of steps to rejuvenate and promote scientific research in universities and other scientific institutes of excellence. The Plan Allocation of scientific departments has been doubled from about Rs.12000 crore in the IX Plan to about Rs.25000 crore in the X Plan and it is planned to increase it further in the XI Plan. The Research Infrastructure programme of DST is a targeted programme to upgrade the laboratory infrastructure in universities and other higher educational institutions. Several institutions, centres of excellence and facilities in emerging and frontline areas have also been established; for example, in the areas of Brain Research, Marine Biotechnology, Stem Cell and Tissue Engineering, Soft Computing, Water Resources Development, Nanophosphors, Display Technology, Fuel Cell Technology, Ultrafast Processes, Protein Research, etc. More recently, three new Indian Institutes of Science Education and Research (IISERs) have been set up at Kolkata, Pune and Chandigarh which, apart from carrying out frontline and internationally competitive research, would offer M.Sc. programmes in a multi-disciplinary and academically flexible and research-oriented environment. Various agencies of Government of India have now attractive scholarship, fellowship and research support schemes for scientific manpower of all ages starting right from the school level.

(e) & (f): Such projections are currently under discussion for the XI Plan period.